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Introduction

Stanton Energy Reliability Center, LLC (SERC, LLC) proposes to construct, own, and operate a hybrid electrical generating and storage facility in Orange County, California (project). The Stanton Energy Reliability Center (SERC) will consist of two General Electric (GE) LM6000 PC-based EGTs. EGT refers to the LM6000 PC Hybrid EGT jointly developed by General Electric International, Inc. and Wellhead Power Solutions. The EGT combines a combustion gas turbine with an integrated battery storage component operated by a proprietary software system. Each EGT will consist of a GE LM6000 PC natural gas-fired, simple-cycle combustion turbine, a clutch to provide operational flexibility as a synchronous condenser, and an integrated 10-megawatt (MW) GE Battery Energy Storage System. In total, SERC will provide 98 MW (nominal) of EGT capacity. The EGT provides a broad array of unique reliability benefits that neither gas turbines nor batteries can provide on their own. Figure 1.0-1 is a photograph of the project site, and Figure 1.0-2 provides an architectural rendering of the SERC.

1.1 Project Objectives

The SERC's primary goal is, as its name implies, to be a state-of-the-art *energy reliability* resource. SERC has been designed to deliver superior reliability services with a minimal carbon footprint and a low emissions profile. The project will be one of the first commercial applications of the EGT. Using this technology, the SERC is able to combine dispatchable, operationally flexible, and efficient energy generation with state-of-the-art energy storage technology to meet the need for new local capacity and reliability services specifically in the West Los Angeles (LA) Basin local reliability area of Southern California Edison's (SCE's) service territory. To achieve this primary objective, the project owner SERC, LLC participated in SCE's 2013 Local Capacity Requirements Request for Offers (2013 LCR RFO) by submitting several project proposals. SCE, with the assistance of an independent evaluator and the California Public Utilities Commission's (CPUC's) Procurement Review Group, considered over 100 proposals in this procurement and selected SERC. SCE and SERC, LLC entered into a Resource Adequacy Purchase Agreement (RAPA) resulting from the 2013 RFO, which has been approved by the CPUC. SCE and SERC, LLC entered into a second RAPA pursuant to SCE's 2014 Energy Storage Request for Offers, which was approved by the CPUC in September 2016.

The SERC's project objectives are as follows:

- Safely construct and operate an electrical energy reliability facility to meet SCE's need for local capacity in the West LA Basin local reliability area of its service territory.
- Use Wellhead's patent pending EGT technology to provide the following:
 - Greenhouse gas (GHG)-free operating reserve
 - Flexible capacity without start time
 - Peaking energy for local contingencies
 - Voltage support and primary frequency response without fuel burn
 - Superior transient response attributable to co-location of gas turbines and battery
 - Gas turbine management of battery state-of-charge in real time
- Site the project as near as possible to an SCE substation with available transmission capacity to serve the West LA Basin and minimize the generation tie-line length.
- Site the project in an existing industrial area on a previously disturbed site to minimize environmental impacts.

- Site the project in a community that embraces the project and its new technology.
- Safely construct and operate an electrical energy reliability project that would satisfy the commercial obligations of both RAPAs.

1.2 Project Location

The SERC will be located in the City of Stanton, Orange County, at 10711 Dale Avenue (Figure 1.2-1). The site is located in an area that is zoned Industrial General (City of Stanton IG zoning district). Land uses surrounding the site include the City of Stanton's industrial area to the north and south, public/quasi-public utility areas to the east consisting of the SCE Barre Peaker power plant and Barre Substation, and high- and medium-density residential uses to the southeast and northwest.

The site consists of two parcels: (1) Parcel 1 (eastern side of the drainage canal) is 1.764 acres in size (Assessor's Parcel Number [APN] 126-531-43), and (2) Parcel 2 (western side of the canal) is 2.214 acres in size (APNs 126-531-40 and 126-553-18), for a total project site acreage of 3.978 acres. The Stanton Storm Channel exists on the eastern extent of Parcel 2 and effectively separates the two parcels. Appendix 1A contains the Alta Surveys for these parcels. A list of the owners of property within 1,000 feet of the SERC and 500 feet of the linear facilities is provided in Appendix 1B.

1.3 Project Elements

Figure 1.3-1 shows the SERC location and linear facilities. The main project elements, including linear facilities and construction laydown areas, are as follows:

- Two GE Energy LM6000 PC combustion turbine generators (CTGs) equipped with selective catalytic reduction (SCR) air emissions control equipment and associated support equipment for nitrogen oxides (NOx) and carbon monoxide (CO) control
- Two sets of lithium-ion batteries housed in purpose-built battery enclosures, each with a nominal capacity of 10 MW (total 20 MW) and 5 megawatt-hours of storage (total 10 megawatt hours)
- Interconnection to SCE's Barre Substation via a 0.35-mile-long underground generator tie-line that runs the SERC site east to the substation
- Natural gas pipeline connection via either a new 12- or 16-inch-diameter pipe that will extend either 2.75 miles north along Dale Avenue to Southern California Gas Company's (SoCalGas's) Line 1014 in La Palma Avenue or 1.78 miles south along Dale Avenue to SoCalGas's Line 1244 in Lampson Avenue
- Process and potable water supply from Golden State Water Company via connections in Dale Avenue and Pacific Street
- Industrial wastewater will be discharged to the City of Stanton sanitary sewer line in Pacific Street to the west of Parcel 2 or Dale Avenue
- Temporary construction facilities will include a 2.89-acre worker parking area at the Bethel Romanian Pentecostal Church, 350 feet south of the SERC site along Dale Avenue¹. The construction laydown area for the gas-fired power plant will be Parcel 2, site of the battery storage system. The battery storage system is to be constructed after construction of the gas turbine part of the EGT is complete.

¹ SERC, LLC is currently in negotiations with church representatives for use of the parking lot.

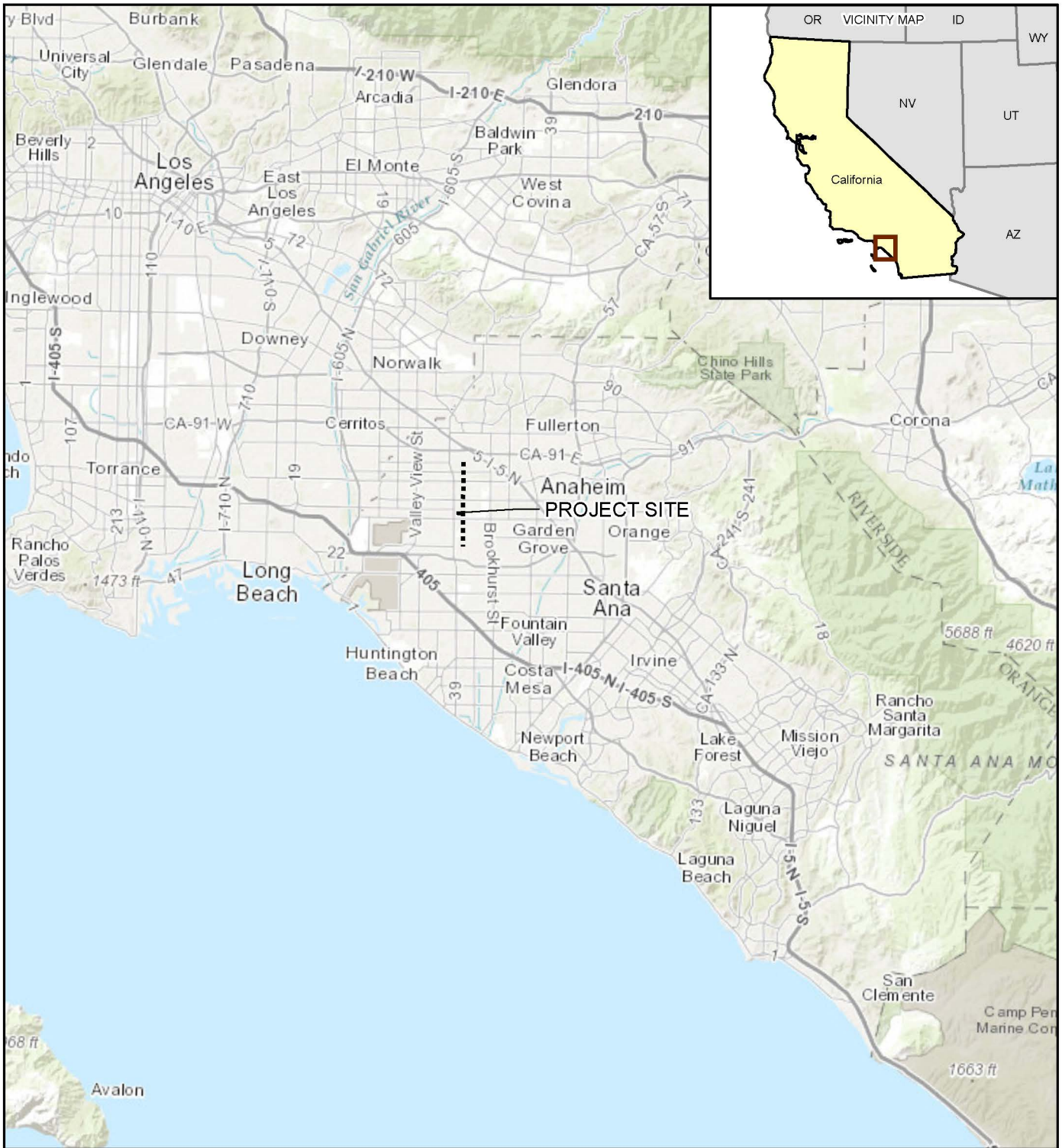


Figure 1.0-1
Project Site Prior to Construction
Stanton Energy Reliability Center AFC
Stanton, California



Base Image Source: Google Earth 2016

Figure 1.0-2
Architectural Rendering
Stanton Energy Reliability Center AFC
Stanton, California
ch2m.



Source: Esri World Terrain Imagery

LEGEND

 Project Site

 Proposed Natural Gas Pipeline Route Alternatives

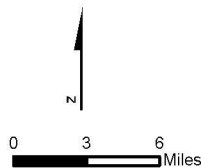
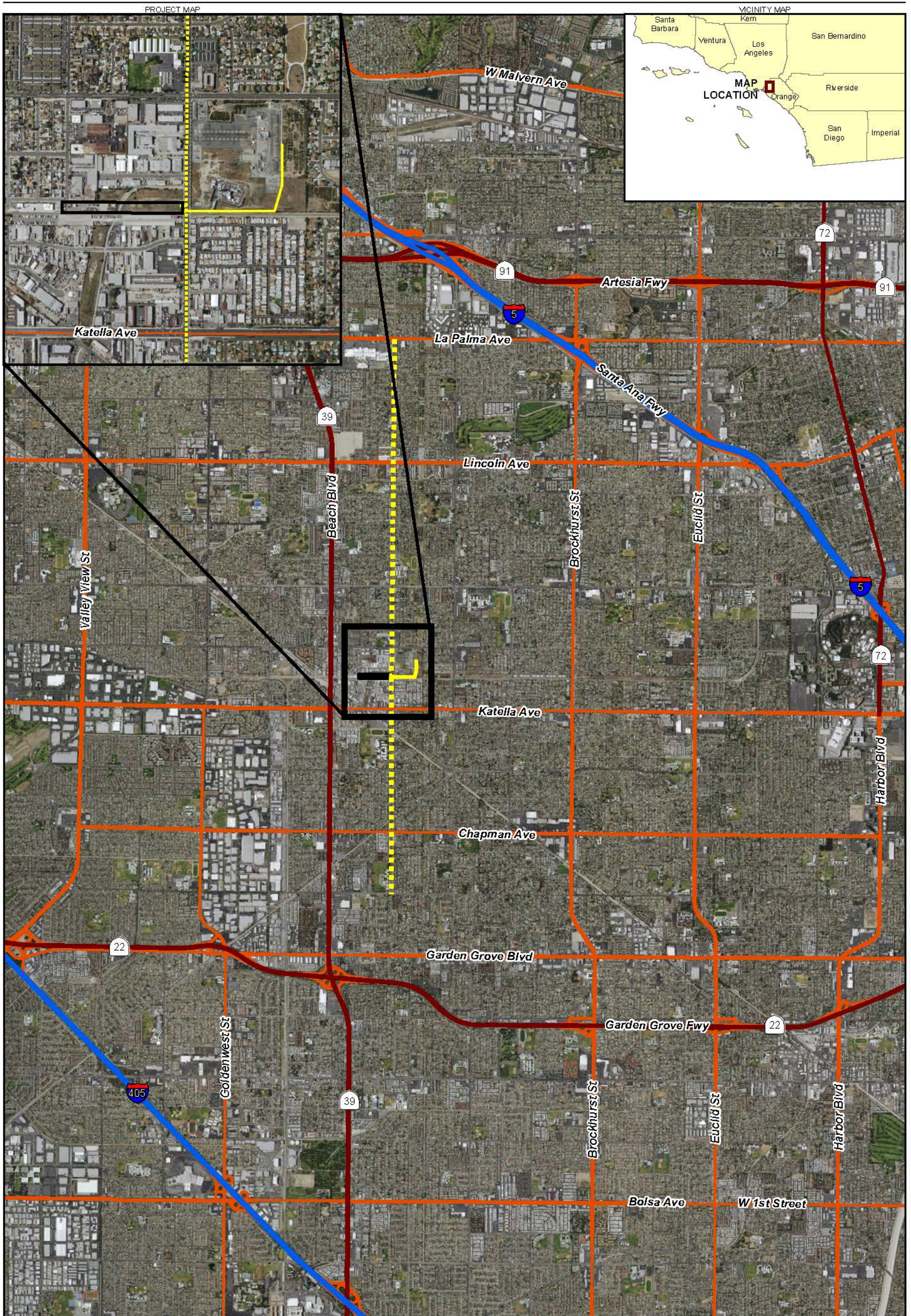


FIGURE 1.2-1
Project Vicinity
 Stanton Energy Reliability Center
 Stanton, California



Source: Esri World Imagery

LEGEND

- Generator Tie-Line
- Proposed Natural Gas
- ⋯ Pipeline Route Alternatives
- Project Site

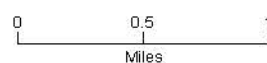


Figure 1.3-1
Project Location
 Stanton Energy Reliability Center AFC
 Stanton, California

1.4 Project Benefits

The SERC will provide the following key environmental and economic benefits:

- **CPUC-approved RAPAs:** The SERC has two RAPAs with SCE that were approved by the CPUC in recognition of the strategic site location to provide local reliability support to the SCE West LA Basin subarea. The project has thus been recognized by both SCE and the CPUC as a beneficial and significant addition for grid services in the SCE service area.
- **Uses the innovative EGT technology jointly developed by Wellhead and GE:** The EGT technology uniquely provides the following:
 - GHG-free spinning reserve
 - Flexible capacity without start time
 - Peaking energy for local contingencies
 - Voltage support and primary frequency response without fuel burn
 - Superior transient response attributable to co-location of gas turbines and battery
 - Gas turbine management of battery state-of-charge
- **Local Reliability Support in the SCE West LA Basin Subarea:** With the shutdown of San Onofre Nuclear Generating Station and as aging coastal plants that use once-through cooling retire, SERC will provide much-needed generation for local reliability in SCE's West LA Basin Subarea. This subarea has been specifically identified by the California Independent System Operator (CAISO) as needing local reliability generation and ancillary grid services, and this project was selected by SCE out of over 100 proposals received as part of the 2013 LCR RFO sanctioned by the CPUC to address this specific need.
- **Minimized Land Use Impacts:** The SERC is sited in an area zoned Industrial that is partly paved and used for vehicle storage and partly consists of disturbed area that is currently vacant. The site is zoned IG. There are no schools, parks or recreational areas, or other sensitive land uses immediately adjacent to the site. The project is consistent with the applicable local land uses and land use plans.
- **Key Project for Integrating Renewables:** The SERC will provide rapid-response delivery of energy and synchronous condenser voltage support services that are essential to provide reliability support and stability to the grid and integrate intermittent renewable energy sources into the electrical grid.
- **Numerous Construction Jobs:** The SERC will provide for a peak of approximately 60 construction jobs over a 12-month construction and commissioning period.
- **Substantial Property Tax Revenue to City of Stanton, Orange County, and Local Schools:** The SERC will generate approximately \$1.665 million in property tax per year.
- **Local Economic Benefits:** The SERC will not significantly impact local housing, educational, or emergency response resources. In addition to the direct employment benefit, SERC will require and use the services of local or regional firms for major maintenance and overhauls, plant supplies, and other support services throughout the life of the SERC.
- **Sited Within a Supportive Community:** The SERC is within the City of Stanton. SERC has been working collaboratively with the City of Stanton for over 2 years, and the parties have executed a Cooperation Agreement.

1.5 Project Operation

The SERC has two RAPAs with SCE, and its role is to meet local capacity requirements for the Southern California grid in Orange County, including voltage support. With battery storage and using EGT capability, the facility can provide power without a startup time from the battery array for immediate voltage support. The SERC will have an annual capacity factor of 12.3 percent or less and will provide a flexible resource to meet local capacity requirements and facilitate renewable energy integration.

SERC is also configured to operate as a synchronous condenser and, as such, SERC will provide additional voltage support to maintain balance and stabilize the grid without consuming natural gas. Clutches installed on each gas turbine allow the facility to start and convert to a non-combustion operation that does not produce electricity, but is able to provide voltage support services to the local grid. SERC would be dispatched by the CAISO or SCE to operate in this configuration when energy generation is not needed from the SERC but the transmission system requires voltage support.

1.6 Project Ownership

SERC, LLC will construct, own, and operate the SERC. SERC, LLC is a joint venture of W Power, LLC and Wellhead Energy, LLC. W Power, LLC is the majority partner. W Power is a 100 percent female-owned Diverse Business Enterprise (DBE) possessing state of California DBE certification as a Women Business Enterprise under the CPUC certification process. W Power also possesses federal DBE certification as a Women-Owned Small Business via the United States Small Business Administration certification process. Wellhead Energy, LLC is an affiliate of Wellhead Electric Company Inc. (Wellhead). Wellhead is a developer, owner, and operator of small and medium-sized power plants. Privately held since its founding in 1982, Wellhead is the only remaining California-based independent power producer.

1.7 Project Schedule

SERC, LLC is filing this AFC under the California Energy Commission's 12-month licensing process. Construction of the SERC is expected to begin no later than November 2018. Pre-operational testing of the power plant is expected to begin in September 2019, and full-scale commercial operation is expected to begin by December 2019.

1.8 Persons Who Prepared the AFC

Persons with primary responsibility for the preparation of each section of this AFC are listed in Appendix 1C.